

Project Subject/Title: Black Ash Regeneration and Growth
County: Various on WI, MI, MN
TRS

Contact Person: Mary Bodine, 715-274-6321
Type of Prescription: Reconnaissance
Year Initiated: 2000

Abstract/Prescription:

Age structure, growth and regeneration of black ash populations were studied at fourteen sites in MI, WI, and MN. Tree measurements and increment bore samples were taken. Annual radial growth curves were compared/analyzed with age distribution diagrams.

Results:

- Advance regeneration is released during major disturbance events
- Stand establishment of multi-cohort ranged over a period of 70 to 150 years
- Major disturbance always preceded the establishment of a single cohort
- Decline or crown dieback can be caused by winter flooding and freezing or summer drought.
- For success in regeneration, do not restrict flow of water by damming.

Discussion/Recommendations:

- Maintenance of some mature black ash trees for viable seed production has the potential to sustain regeneration

Site/Conditions:

Habitat: forested wetlands and ponds

Covertypes: Swamp Hardwood

Enclosed Data Document

AGE STRUCTURE, GROWTH, AND REGENERATION OF *FRAXINUS NIGRA*
POPULATIONS IN THE UPPER GREAT LAKES STATES

By

Mary Collins

A THESIS

Submitted in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE IN FORESTRY

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Abstract: Black ash (*Fraxinus nigra* Marsh) populations, commonly found in many forested wetlands, are relatively small and isolated. This taxon now suffers from crown dieback and mortality throughout its range. We studied the age structure, growth, and regeneration of black ash populations in the Upper Great Lakes States to better understand the population structure and dynamics. Fourteen sites across Michigan, Minnesota, and Wisconsin were selected for study, and at each site tree measurements and increment core samples were collected along with regeneration tallies. Pairing annual radial growth curves with age distribution diagrams revealed that a major disturbance always preceded the establishment of a single-cohort of black ash. Annual radial growth curves show evidence that at some sites advanced regeneration was released during major disturbance events. Stand establishment of single-cohorts occurred over a period of 56 years on average. Minor disturbance events were linked to multiple-cohort stands. Stand establishment of multiple-cohorts ranged over a period from 70 to 150 years. Density-diameter distributions indicate that at least two populations of black ash are present on each site— one in the understory and one in the overstory. Our results suggest that in order for a black ash population to be maintained over time, some degree of disturbance must occur to release the understory population.